WO 2004/007630 PCT/SE2003/001015

11

## CLAIMS

1. Use of a drag-reducing agent containing

a) a zwitterionic surfactant of the formula

R<sub>3</sub>

5

R<sub>1</sub>NHC<sub>3</sub>H<sub>6</sub>N<sup>+</sup>R<sub>5</sub>COO<sup>-</sup>

(I),

.

R4

where  $R_1$  is acyl group with 12-16 carbon atoms,  $R_3$  and  $R_4$  are independently of each other an alkyl group of 1-4 carbon atoms or an hydroxyalkyl group of 2-4 carbon atoms and  $R_5$  is an alkylene group of 1-4 carbon atoms, preferably  $CH_2$  or a group

15 -CH-

l

 $R_6$ 

where  $R_6$  is an alkyl group of 1-3 carbon atoms,

b) a zwitterionic surfactant of the formula

20

R<sub>3</sub>

R2NHC3H6NTR5COOT

(II)

R4

where  $R_2$  is an acyl group with 18-22 carbon atoms, and  $R_3$ ,  $R_4$  and  $R_5$  have the meanings mentioned above, and

an anionic surfactant of the formulae

 $R_7(OA)_nB$  or  $R_7E$ 

or a mixture thereof, where R<sub>7</sub> is an aliphatic group of 8-14

carbon atoms, A is an alkylene group having 2-4 carbon atoms,

n is a number from 1 to 10, B is a sulphate group OSO<sub>3</sub>M, E is

WO 2004/007630

5

10

20

12

PCT/SE2003/001015

a sulphate group OSO<sub>3</sub>M or a sulphonate group -SO<sub>3</sub>M and M is a cationic, preferably monovalent group;

the weight of a), b) and c) being 20-95% by weight, 0-70% by weight and 1-50% by weight, respectively, based on the total amount of a), b) and c);

in an amount of a), b) and c) of 50-400 ppm in water having an electrolyte content from 0.01-7% by weight.

- 2. Use according to claim 1, wherein the component a) and b) are present in an amount of 20-85% by weight and 10-70% by weight, respectively.
- 3. Use according to claim 1 or 2, wherein  $R_2$  contains at least 50% by weight of unsaturated acyl groups.
- 4. Use according to claim 3, wherein  $R_2$  contains at least 20% by weight of two or more double bonds.
- 15 5. Use according to any one of claims 1-4, wherein c) is lauryl sulphate, a lauryl (oxyethylene)<sub>n</sub> sulphate, where n is 1-3, or lauryl sulphonate.
  - 6. Use according to any one of claims 1-5, characterized in that the water has an electrolyte content of 0.3-6% by weight.
  - 7. A drag-reducing agent, characterized in that it contains the components a), b) and c) as defined in claims 2-5.
  - 8. Injection water for the treatment of oil reservoirs, characterized in that the water contains the components a),
- 25 b) and c) as defined in claims 1-5 in a total amount of 50-400 ppm and has an electrolyte content of 0.01-7% by weight.
  - 9. Injection water according to claim 8, characterized in that it contains electrolytes in an amount of 0.3-6% by weight.
- 10. Injection water according to claim 8 or 9, characterized in that the water is sea-water or production water.